

APPENDIX A

SOIL VAPOR DATA VALIDATION REPORT SIXTH LONG-TERM SAMPLING EVENT



LABORATORY DATA CONSULTANTS, INC.

7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

Geofon, Inc.
22632 Golden Springs Drive, Suite 270
Diamond Bar, CA 91765
ATTN: Mr. Tony Ford

March 22, 2002

SUBJECT: NASA JPL, DO #48, Data Validation

Dear Mr. Ford,

Enclosed is the final validation report for the fraction listed below. This SDG was received on March 15, 2002. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 8108:

<u>SDG #</u>	<u>Fraction</u>
GF021102T2	Volatile Halogenated/Aromatic Hydrocarbons

The data validation was performed under EPA Level III guidelines. The analyses were validated using the following documents, as applicable to each method:

- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996

Please feel free to contact us if you have any questions.

Sincerely,

Richard M. Amano
President/Principal Chemist

Attachment 1

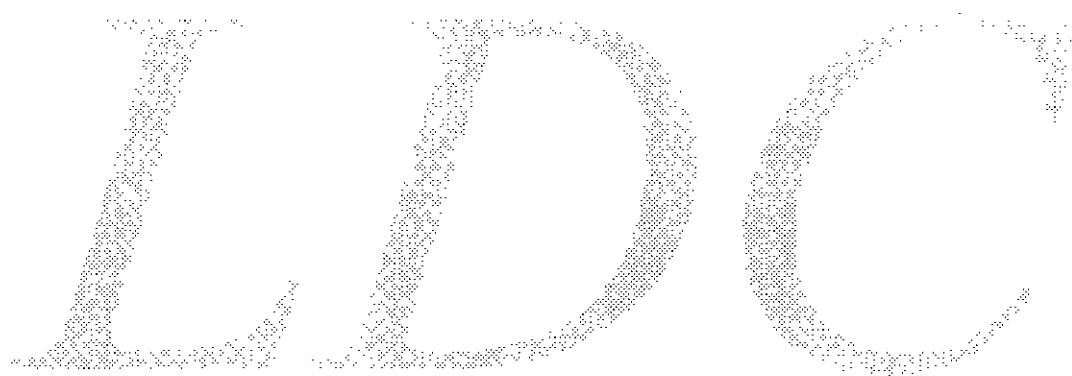
LDC #8108 (Geofon, Inc. / NASA Jet Propulsion Laboratory, CTO#0048)

Project#04-4304-480 JPL 1

Shaded cells indicate Level IV validation (all other cells are Level III validation).

**NASA JPL
Data Validation Reports
LDC# 8108**

Volatile Halogenated/Aromatic Hydrocarbons



Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL
Collection Date: February 11 through February 20, 2002
LDC Report Date: March 20, 2002
Matrix: Air
Parameters: Volatile Halogenated/Aromatic Hydrocarbons
Validation Level: EPA Level III
Laboratory: HP Labs
Sample Delivery Group (SDG): GF021102T2

Sample Identification

SVW30-VPA-01	SVW3-VPC-21	SVW27-VPA-41
SVW30-VPB-02	SVW3-VPD-22	SVW27-VPA-42DUP
SVW-30-VPC-03	SVW4-VPB-23	SVW27-VPB-43
SVW30-VPD-04	SVW4-VPB-24DUP	SVW27-VPC-44
SVW30-VPE-05	SVW4-VPD-25	SVW27-VPD-45
SVW30-VPE-06DUP	SVW17-VPC-26	SVW27-VPE-46
SVW31-VPA-07	SVW9-VPA-27	SVW27-VPF-47
SVW31-VPB-08	SVW9-VPB-28	SVW27-VPF-48DUP
SVW31-VPD-09	SVW9-VPC-29	SVW27-VPG-49
SVW31-VPE-10	SVW9-VPC-30DUP	SVW27-VPI-50
SVW12-VPC-11	SVW9-VPD-31	SVW27-VPJ-51
SVW12-VPC-12DUP	SVW9-VPE-32	SVW26-VPF-52
SVW12-VPD-13	SVW10-VPB-33	SVW26-VPG-53
SVW5-VPB-14	SVW10-VPD-34	SVW26-VPG-54DUP
SVW7-VPA-15	SVW32-VPH-35	SVW26-VPH-55
SVW7-VPB-16	SVW32-VPH-36DUP	SVW37-VPA-56
SVW1-VPB-17	SVW11-VPA-37	SVW37-VPD-57
SVW1-VPB-18DUP	SVW11-VPE-38	SVW37-VPE-58
SVW1-VPC-19	SVW14-VPA-39	SVW37-VPH-59
SVW2-VPA-20	SVW14-VPB-40	SVW37-VPH-60DUP

SVW37-VPI-61	SVW35-VPE-81
SVW37-VPJ-62	SVW35-VPI-82
SVW36-VPB-63	SVW15-VPB-83
SVW36-VPC-64	SVW15-VPB-84DUP
SVW36-VPE-65	SVW15-VPC-85
SVW36-VPE-66DUP	SVW15-VPD-86
SVW8-VPC-67	SVW15-VPE-87
SVW8-VPD-68	SVW6-VPB-88
SVW8-VPE-69	SVW6-VPD-89
SVW39-VPA-70	SVW6-VPD-90DUP
SVW39-VPC-71	SVW6-VPE-91
SVW39-VPC-72DUP	SVW33-VPD-92
SVW39-VPD-73	SVW33-VPE-93
SVW39-VPE-74	SVW33-VPF-94
SVW39-VPF-75	
SVW39-VPI-76	
SVW38-VPE-77	
SVW38-VPE-78DUP	
SVW38-VPF-79	
SVW38-VPJ-80	

Introduction

This data review covers 94 air samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 8010 and 8021B modified for Volatile Halogenated/Aromatic Hydrocarbons.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
 - J Indicates an estimated value.
 - R Quality control indicates the data is not usable.
 - N Presumptive evidence of presence of the constituent.
 - UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
 - A Indicates the finding is based upon technical validation criteria.
 - P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodys were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed for the primary (quantitation) column and confirmation column as required by these methods with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG GF021102T2	All TCL compounds	A three point calibration was performed.	A five point calibration is specified by the method.	None	P

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

b. Continuing Calibration

Continuing calibration was performed at the required frequencies.

For all samples continuing calibration was not performed for Chloroethane, Vinyl Chloride, Trichlorofluoromethane and Dichlorodifluoromethane. Since these compounds were not detected in the associated samples, no data were qualified.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
2/11/02	Chloroform	18.3	SVW30-VPA-01 SVW30-VPB-02 SVW30-VPC-03 SVW30-VPD-04 SVW30-VPE-05 SVW30-VPE-06DUP SVW31-VPA-07 SVW31-VPB-08 SVW31-VPD-09 SVW31-VPE-10 SVW12-VPC-11 SVW12-VPC-12DUP SVW12-VPD-13 MB (2/11)	J (all detects) UJ (all non-detects)	A

Date	Compound	%D	Associated Samples	Flag	A or P
2/12/02	Dichloromethane 1,1,2,2-Tetrachloroethane	17.8 15.5	SVW5-VPB-14 SVW7-VPA-15 SVW7-VPB-16 SVW1-VPB-17 SVW1-VPB-18DUP SVW1-VPC-19 SVW2-VPA-20 SVW3-VPC-21 SVW3-VPD-22 SVW4-VPB-23 SVW4-VPB-24DUP SVW4-VPD-25 SVW17-VPC-26 MB (2/12)	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
2/13/02	1,1,2,2-Tetrachloroethane	15.4	SVW9-VPA-27 SVW9-VPB-28 SVW9-VPC-29 SVW9-VPC-30DUP SVW9-VPD-31 SVW9-VPE-32 SVW10-VPB-33 SVW10-VPD-34 SVW32-VPH-35 SVW32-VPH-36DUP SVW11-VPA-37 SVW11-VPE-38 SVW14-VPA-39 SVW14-VPB-40 MB (2/13)	J (all detects) UJ (all non-detects)	A
2/20/02	1,1,2,2-Tetrachloroethane	15.1	SVW15-VPB-83 SVW15-VPB-84DUP SVW15-VPC-85 SVW15-VPD-86 SVW15-VPE-87 SVW6-VPB-88 SVW6-VPD-89 SVW6-VPD-90DUP SVW6-VPE-91 SVW33-VPD-92 SVW33-VPE-93 SVW33-VPF-94 MB (2/20)	J (all detects) UJ (all non-detects)	A

III. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile halogenated/aromatic hydrocarbon contaminants were found in the method blanks.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

b. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

c. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent differences (%D) were within QC limits.

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

Samples SVW4-VPB-23 and SVW4-VPB-24DUP, samples SVW9-VPC-29 and SVW9-VPC-30DUP, samples SVW32-VPH-35 and SVW32-VPH-36DUP, samples SVW30-VPE-05 and SVW30-VPE-06DUP, samples SVW12-VPC-11 and SVW12-VPC-12DUP, samples SVW1-VPB-17 and SVW1-VPB-18DUP, samples SVW27-VPA-41 and SVW27-VPA-42DUP, samples SVW27-VPF-47 and SVW27-VPF-48DUP, samples SVW26-VPG-53 and SVW26-VPG-54DUP, samples SVW37-VPH-59 and SVW37-VPH-60DUP, samples SVW36-VPE-65 and SVW36-VPE-66DUP, samples SVW39-VPC-71 and SVW39-VPC-72DUP, samples SVW38-VPE-77 and SVW38-VPE-78DUP, samples SVW15-VPB-83 and SVW15-VPB-84DUP and samples SVW6-VPD-89 and SVW6-VPD-90DUP were identified as field duplicates. No volatile halogenated/aromatic hydrocarbons were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	SVW4-VPB-23	SVW4-VPB-24DUP	
Trichloroethene	8.9	6.9	25

Compound	Concentration (ug/L)		RPD
	SVW9-VPC-29	SVW9-VPC-30DUP	
1,1,2-Trichlorotrifluoroethane	1.1	1.3	17

Compound	Concentration (ug/L)		RPD
	SVW32-VPH-35	SVW32-VPH-36DUP	
Carbon tetrachloride	3.9	2.1	60
1,1,2-Trichlorotrifluoroethane	8.1	6.2	27

X. Field Blanks

No field blanks were identified in this SDG.

NASA JPL**Volatile Halogenated/Aromatic Hydrocarbons- Data Qualification Summary - SDG**
GF021102T2

SDG	Sample	Compound	Flag	A or P	Reason
GF021102T2	SVW30-VPA-01 SVW30-VPB-02 SVW30-VPC-03 SVW30-VPD-04 SVW30-VPE-05 SVW30-VPE-06DUP SVW31-VPA-07 SVW31-VPB-08 SVW31-VPD-09 SVW31-VPE-10 SVW12-VPC-11 SVW12-VPC-12DUP SVW12-VPD-13 SVW5-VPB-14 SVW7-VPA-15 SVW7-VPB-16 SVW1-VPB-17 SVW1-VPB-18DUP SVW1-VPC-19 SVW2-VPA-20 SVW3-VPC-21 SVW3-VPD-22 SVW4-VPB-23 SVW4-VPB-24DUP SVW4-VPD-25 SVW17-VPC-26 SVW9-VPA-27 SVW9-VPB-28 SVW9-VPC-29 SVW9-VPC-30DUP SVW9-VPD-31 SVW9-VPE-32 SVW10-VPB-33 SVW10-VPD-34 SVW32-VPH-35 SVW32-VPH-36DUP SVW11-VPA-37 SVW11-VPE-38 SVW14-VPA-39 SVW14-VPB-40 SVW27-VPA-41 SVW27-VPA-42DUP SVW27-VPB-43 SVW27-VPC-44 SVW27-VPD-45 SVW27-VPE-46 SVW27-VPF-47 SVW27-VPF-48DUP SVW27-VPG-49 SVW27-VPI-50 SVW27-VPJ-51 SVW26-VPF-52 SVW26-VPG-53 SVW26-VPG-54DUP SVW26-VPH-55 SVW37-VPA-56	All TCL compounds	None	P	Initial calibration

SDG	Sample	Compound	Flag	A or P	Reason
GF021102T2	SVW37-VPD-57 SVW37-VPE-58 SVW37-VPH-59 SVW37-VPH-60DUP SVW37-VPI-61 SVW37-VPJ-62 SVW36-VPB-63 SVW36-VPC-64 SVW36-VPE-65 SVW36-VPE-66DUP SVW8-VPC-67 SVW8-VPD-68 SVW8-VPE-69 SVW39-VPA-70 SVW39-VPC-71 SVW39-VPC-72DUP SVW39-VPD-73 SVW39-VPE-74 SVW39-VPF-75 SVW39-VPI-76 SVW38-VPE-77 SVW38-VPE-78DUP SVW38-VPF-79 SVW38-VPJ-80 SVW35-VPE-81 SVW35-VPI-82 SVW15-VPB-83 SVW15-VPB-84DUP SVW15-VPC-85 SVW15-VPD-86 SVW15-VPE-87 SVW6-VPB-88 SVW6-VPD-89 SVW6-VPD-90DUP SVW6-VPE-91 SVW33-VPD-92 SVW33-VPE-93 SVW33-VPF-94	All TCL compounds	None	P	Initial calibration
GF021102T2	SVW30-VPA-01 SVW30-VPB-02 SVW30-VPC-03 SVW30-VPD-04 SVW30-VPE-05 SVW30-VPE-06DUP SVW31-VPA-07 SVW31-VPB-08 SVW31-VPD-09 SVW31-VPE-10 SVW12-VPC-11 SVW12-VPC-12DUP SVW12-VPD-13	Chloroform	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

SDG	Sample	Compound	Flag	A or P	Reason
GF021102T2	SVW5-VPB-14 SVW7-VPA-15 SVW7-VPB-16 SVW1-VPB-17 SVW1-VPB-18DUP SVW1-VPC-19 SVW2-VPA-20 SVW3-VPC-21 SVW3-VPD-22 SVW4-VPB-23 SVW4-VPB-24DUP SVW4-VPD-25 SVW17-VPC-26	Dichloromethane 1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
GF021102T2	SVW9-VPA-27 SVW9-VPB-28 SVW9-VPC-29 SVW9-VPC-30DUP SVW9-VPD-31 SVW9-VPE-32 SVW10-VPB-33 SVW10-VPD-34 SVW32-VPH-35 SVW32-VPH-36DUP SVW11-VPA-37 SVW11-VPE-38 SVW14-VPA-39 SVW14-VPB-40 SVW15-VPB-83 SVW15-VPB-84DUP SVW15-VPC-85 SVW15-VPD-86 SVW15-VPE-87 SVW6-VPB-88 SVW6-VPD-89 SVW6-VPD-90DUP SVW6-VPE-91 SVW33-VPD-92 SVW33-VPE-93 SVW33-VPF-94	1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

NASA JPL

Volatile Halogenated/Aromatic Hydrocarbons- Laboratory Blank Data Qualification Summary - SDG GF021102T2

No Sample Data Qualified in this SDG



GEOFON PROJECT # 04-4304-480 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF021102T2

GC SHIMADZU 14A VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR

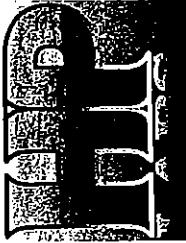
SOIL VAPOR DATA IN UG/L-VAPOR		AMBIENT BLANK	SVW30-VPA-01	SVW30-VPB-02	SVW30-VPC-03	SVW30-VPD-04	SVW30-VPE-05	SVW30-VPF-06	DUP	02/11/02	02/11/02	02/11/02	02/11/02
DATE	ANALYSIS TIME		02/11/02	07:34	07:57	08:19	08:41	09:03	09:25				
	SAMPLING DEPTH (feet)	-	-	17	30	40	50	65	65				
	VOLUME WITHDRAWN (cc)	-	128	180	220	260	320	440	440				
	VOLUME INJECTED	1	1	1	1	1	1	1	1				
	DILUTION FACTOR	1	1	1	1	1	1	1	1				
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd				
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd				
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd	nd				
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd				
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd				
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd				
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd				
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd				
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd				
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd				
DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd				
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd				
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd				
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd				
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd				
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd				
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd				
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd	nd				
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd	nd				
1,1,2-TRICHLOROTRIFLUOROETHANE (FR13)	nd	nd	nd	nd	nd	nd	nd	nd	nd				
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd				
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd				
ETHYL BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd				
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd	nd				
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd	nd				
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd				
SURROGATES													
1,4 DIFLUORO BENZENE	104%	105%	102%	105%	98%	105%	98%	105%	105%				
4 BROMOFLUORO BENZENE	110%	112%	108%	112%	112%	103%	103%	112%	112%				

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 10 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOHHS MOBILE LABORATORY (CERT #1667)

DATA REVIEWED BY: TAMARA DAVIS

3/21/07



GEOFON PROJECT # 04-4304-480 JPL-1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF021102T2

GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

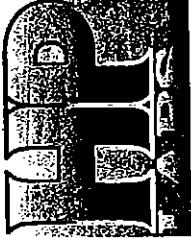
		SVW31-VPB-07	SVW31-VPB-08	SVW31-VPD-09	SVW31-VPE-10	SVW12-VPC-11	SVW12-VPC-12	DUP	SVW12-VPD-13
DATE	02/11/02	02/11/02	02/11/02	02/11/02	02/11/02	02/11/02	02/11/02	02/11/02	02/11/02
ANALYSIS TIME	09:47	10:10	10:32	10:54	11:43	12:05	12:29	12:29	12:29
SAMPLING DEPTH (feet)	20	35	55	65	60	60	76	76	76
VOLUME WITHDRAWN (cc)	140	200	280	320	300	420	364	364	364
VOLUME INJECTED	1	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR13)	nd	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
ETHYL BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES									
1,4-DIFLUORO BENZENE	117%	97%	106%	103%	101%	98%	103%	103%	103%
4-BROMOFLUORO BENZENE	125%	103%	112%	109%	108%	105%	108%	108%	108%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CADDOHS MOBILE LABORATORY (CERT #1667)

DATA REVIEWED BY: TAMARA DAVIS

9/21/02



GEOFON PROJECT # 04-4304-480 JPL 1
GC SHIMADZU 14A
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

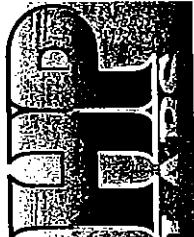
HP Labs Project #GF-021102T2

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	AMBIENT BLANK	SVW5-VPB-14	SVW7-VPA-15	SVW7-VPB-16	SVW7-VPB-17	DUP	SVW1-VPB-18	SVW1-VPC-19
DATE	02/12/02	02/12/02	02/12/02	02/12/02	02/12/02	02/12/02	02/12/02	02/12/02
ANALYSIS TIME	07:32	07:54	08:16	08:38	09:00	09:24	09:46	09:46
SAMPLING DEPTH (feet)	--	9	20	35	21	21	33	33
VOLUME WITHDRAWN (cc)	--	96	140	200	144	264	192	192
VOLUME INJECTED	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROMETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4-DIFLUORO BENZENE	98%	99%	103%	99%	100%	103%	99%	99%
4-BROMOFLUORO BENZENE	105%	105%	110%	108%	107%	108%	105%	105%

NO INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND
ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY (CERT #1667)
ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS

1/31/02



GEOFON PROJECT # 04-4304-480 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF021102T2

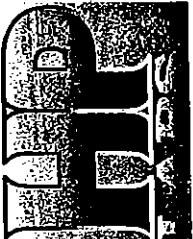
GC SHIMADZU 14A
VOLATILE HALOGEN
SOIL VAPOR DATA IN

GC SHIMADZU 14A
GC VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021)
VOLATILE DATA INUCHI VASOP
ANALYSES OF SOIL VAPOR

ND INDICATES NOT DETERMINED | EMI | GFI | 1.0 UG/L-VAF FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY (CERT #1667)

ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS



GEOFON PROJECT #04-4304-480 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF021102T2

GC SHIMADZU 14A

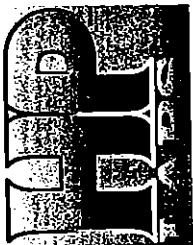
VOLATILE HAILOGENATED AND ARO

VOCABULARY IN HIGH-VAPOR

SUL VAFUR DAIAH UGHEJAH

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 $\mu\text{g/L}$. VAPOR FOR EACH COMPOUND

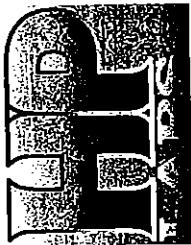
ANALYSES PERFORMED ON-SITE IN CAD
ANALYSES PERFORMED BY: MARK BURKE



HP Labs Project #GF021102T2
GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	SVW10-VPD-34	SVW32-VPH-35	SVW32-VPH-36	DUP	SVW11-VPA-37	SVW11-VPE-38	SVW14-VPA-39	SVW14-VPB-40	
DATE	02/13/02	02/13/02	02/13/02	02/13/02	02/13/02	02/13/02	02/13/02	02/13/02	02/13/02
ANALYSIS TIME	10:47	11:13	11:35	12:47	13:10	13:32	13:32	13:35	
SAMPLING DEPTH (feet)	69	155	155	20	96	5	10		
VOLUME WITHDRAWN (cc)	336	680	800	140	444	80	100		
VOLUME INJECTED	1	1	1	1	1	1	1		
DILUTION FACTOR	1	1	1	1	1	1	1		
CARBON TETRACHLORIDE	nd	3.9	2.1	nd	nd	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROMETHANE (FR113)	1.1	8.1	6.2	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
ETHYL BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOLEUNE	nd	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES									
1,4 DIFLUORO BENZENE	101%	103%	98%	93%	101%	103%	98%		
4 BROMOFLUORO BENZENE	110%	112%	107%	102%	111%	111%	107%		

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND
ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY (CERT #1667)
ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS
3/21/02



GEOFON PROJECT # 04-4304-480 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF021102T2

GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method B021) ANALYSES OF SOIL VAPOR

SOIL VAPOR DATA IN UG/L-VAPOR

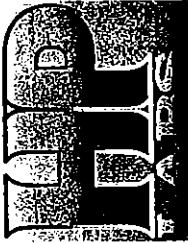
	AMBIENT BLANK	SW27-VPA-41	DUP	SW27-VPA-42	SW27-VPB-43	SW27-VPC-44	SW27-VPD-45	SW27-VPE-46	SW27-VPF-47	
DATE	02/14/02	02/14/02	02/14/02	02/14/02	02/14/02	02/14/02	02/14/02	02/14/02	02/14/02	02/14/02
ANALYSIS TIME	07:17	07:39	08:01	08:23	08:47	09:09	09:31	09:52	10:13	10:34
SAMPLING DEPTH (feet)	-	20	20	35	60	85	100	120	140	152
VOLUME WITHDRAWN (cc)	--	140	260	200	300	400	460	540	620	700
VOLUME INJECTED	1	1	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
ETHYL BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES										
1,4 DIFLUORO BENZENE	96%	101%	97%	99%	97%	99%	100%	99%	100%	99%
4 BROMOFLUORO BENZENE	105%	110%	105%	107%	108%	108%	109%	107%	108%	107%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOH'S MOBILE LABORATORY #167

ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS

3/21/02



HP Labs Project #GF0211021
GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

HP Labs Project #GF02110212

GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

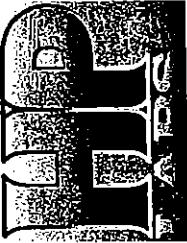
DATE	ANALYSIS TIME	SAMPLING DEPTH (feet)	VOLUME WITHDRAWN (cc)	VOLUME INJECTED	DILUTION FACTOR	SVW27-VPG-48	SVW27-VPG-49	SVW27-VPI-50	SVW27-VPI-51	SVW26-VPF-52	SVW26-VPF-53	SVW26-VPG-54	SVW26-VPH-55
						DUP							
02/14/02	02/14/02	10:14	10.36	10:58	11:44	02/14/02	02/14/02	12:06	12:30	12:52	02/14/02	02/14/02	02/14/02
120	140	140	180	205	115	nd							
660	620	780	880	520	620	nd							
1	1	1	1	1	1	nd							
1	1	1	1	1	1	nd							
						nd							
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORODIFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES													
1,4-DIFLUORO BENZENE	98%	98%	98%	98%	98%	95%	97%	98%	98%	99%	98%	98%	98%
4-BROMOFLUORO BENZENE	107%	107%	107%	105%	105%	105%	105%	105%	105%	105%	105%	105%	107%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 ug/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY #1687

DATA REVIEWED BY: TAMARA DAVIS

3/21/02



GEOFON PROJECT # 04-4304-480 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GFO21102T2

GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

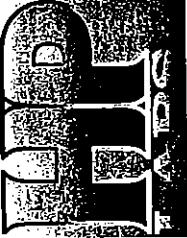
	AMBIENT BLANK	SVW37-VPA-56	SVW37-VPD-57	SVW37-VPE-58	SVW37-VPH-59	DUP	SVW37-VPH-60	SVW37-VPI-61	SVW37-VPI-62
DATE	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02
ANALYSIS TIME	06:46	07:15	07:39	08:01	08:23	08:45	09:08	09:32	09:32
SAMPLING DEPTH (feet)	-	25	.80	100	155	170	185	185	185
VOLUME WITHDRAWN (cc)	-	160	380	460	680	800	800	800	800
VOLUME INJECTED	1	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR13)	nd	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
ETHYL BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES									
1,4 DIFLUORO BENZENE	96%	97%	99%	97%	98%	97%	96%	97%	97%
4-BROMOFLUORO BENZENE	105%	105%	107%	106%	107%	106%	105%	105%	106%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY (CERT #1667)

DATA REVIEWED BY: TAMARA DAVIS

3/21/02



GEOFON PROJECT # 04-4304-480 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project # GF021102T2

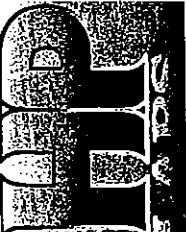
GC SHIMADZU 14A

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	SVM36-VPB-63	SVM36-VPC-64	SVM36-VPE-65	SVM36-VPE-66	SVM36-VPC-67	SVM8-VPD-68	SVM8-VPE-69
DATE	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02	02/15/02
ANALYSIS TIME	10:08	10:30	11:19	11:42	12:04	12:26	12:48
SAMPLING DEPTH (feet)	35	55	92	92	50	70	90
VOLUME WITHDRAWN (cc)	200	280	428	548	260	340	420
VOLUME INJECTED	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	1.4	7.3	nd	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	1.4	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	4.3	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	7.6	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR13)	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd
TOULUENE	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd
SURROGATES							
1,4-DIFLUORO BENZENE	101%	98%	98%	103%	100%	99%	101%
4-BROMOFLUORO BENZENE	111%	106%	105%	112%	109%	107%	111%

NO INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND
ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY (CERT #1667)
DATA REVIEWED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS

1/31/02



GEOFON PROJECT # 04-4304-460 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF021102T2

GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

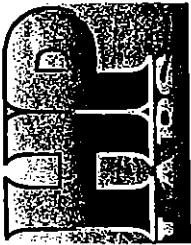
	AMBIENT BLANK	SVW39-VPA-70	SVW39-VPC-71	DUP	SVW39-VPC-72	SVW39-VPD-73	SVW39-VPE-74	SVW39-VPF-75
DATE	02/19/02	02/19/02	02/19/02	02/19/02	02/19/02	02/19/02	02/19/02	02/19/02
ANALYSIS TIME	06:49	07:10	07:32	07:54	08:15	08:37	09:08	09:08
SAMPLING DEPTH (feet)	-	20	50	50	70	85	100	100
VOLUME WITHDRAWN (cc)	-	140	260	380	340	400	460	460
VOLUME INJECTED	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYL BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	98%	92%	97%	97%	97%	95%	93%	93%
4 BROMOFLUORO BENZENE	108%	103%	107%	107%	109%	104%	102%	102%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY (CERT #1667)

DATA REVIEWED BY: TAMARA DAVIS

9/31/02



GEOFON PROJECT # 04-4304-480 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF021102T2

GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	SVW39-VPI-76	SVW38-VPE-77	DUP	02/19/02	02/19/02	02/19/02	02/19/02	SVW35-VPI-81	SVW35-VPI-82
DATE	02/19/02	09:57	10:19	10:42	11:28	11:51	12:13		
ANALYSIS TIME	09:35	95	95	100	170	80	140		
SAMPLING DEPTH (feet)	130	440	560	460	740	380	620		
VOLUME WITHDRAWN (cc)	580	1	1	1	1	1	1		
VOLUME INJECTED	1	1	1	1	1	1	1		
DILUTION FACTOR	1								
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd		
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd		
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd		
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd		
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd		
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd		
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd		
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd		
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd		
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd		
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd		
1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd		
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd		
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd		
TRICHLORO ETHENE	5.1	nd	nd	nd	nd	nd	nd		
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd		
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd		
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd		
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd		
BENZENE	nd	nd	nd	nd	nd	nd	nd		
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd		
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd		
TOLUENE	nd	nd	nd	nd	nd	nd	nd		
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd		
o-XYLENE	nd	nd	nd	nd	nd	nd	nd		
SURROGATES									
1,4 DIFLUORO BENZENE	97%	97%	98%	96%	95%	96%	97%		
4 BROMOFLUORO BENZENE	107%	106%	108%	108%	106%	107%	107%		

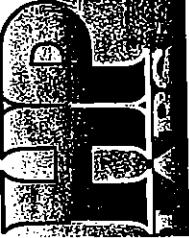
ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY (CERT #1667)

ANALYSES PERFORMED BY: MARK BURKE

DATA REVIEWED BY: TAMARA DAVIS

5/21/02



GEOFON PROJECT # 04-4304-480-JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

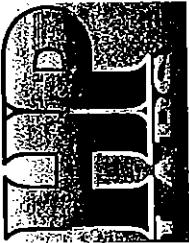
HP Labs Project #GF02110272

GC SHIMADZU 14A
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR

		AMBIENT BLANK		SVW15-VPB-83		SVW15-VPB-84		SVW15-VPC-85		SVW15-VPE-87		SVW15-VPF-88	
		DUP		02/20/02		07:41		08:03		08:25		08:46	
DATE	ANALYSIS TIME	SAMPLING DEPTH (feet)	VOLUME WITHDRAWN (cc)	VOLUME INJECTED	DILUTION FACTOR								
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
ETHYL BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES													
1,4-DIFLUORO BENZENE	91%	91%	93%	95%	93%	93%	93%	93%	93%	92%	94%		
4-BROMOFLUORO BENZENE	103%	102%	105%	105%	105%	104%	104%	104%	104%	102%	104%		

NOT INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND
ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY (CERT #1667)
DATA REVIEWED BY: TAMARA DAVIS
DATA PERFORMED BY: MARK BURKE

9/21/02



GEOFON PROJECT # 04-4304-480 JPL 1
JET PROPULSION LABORATORY
4800 OAK GROVE DRIVE
PASADENA, CA

HP Labs Project #GF02110272

GC SHIMADZU 14A

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8021) ANALYSES OF SOIL VAPOR

SOIL VAPOR DATA IN UG/L-VAPOR

	SVM6-VPD-89	SVM6-VPD-90 DUP	SVM6-VPE-91	SVM33-VPD-92	SVM33-VPE-93	SVM33-VPF-94
DATE	02/20/02	02/20/02	02/20/02	02/20/02	02/20/02	02/20/02
ANALYSIS TIME	09:08	09:30	10:15	11:22	11:45	12:08
SAMPLING DEPTH (feet)	77	77	96	83	105	120
VOLUME WITHDRAWN (cc)	368	488	444	400	480	540
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	4.2	7.0	3.1
CHLOROETHANE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd
ETHYL BENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
SURROGATES						
1,4 DIFLUORO BENZENE	93%	94%	95%	87%	85%	99%
4 BROMOFLUORO BENZENE	105%	105%	106%	96%	106%	111%

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

ANALYSES PERFORMED ON-SITE IN CA DOHS MOBILE LABORATORY (CERT #1667)
ANALYSES PERFORMED BY: MARK BURKE
DATA REVIEWED BY: TAMARA DAVIS

9/21/02

LDC #: 8108A23
 SDG #: GF021102T2
 Laboratory: HP Labs

VALIDATION COMPLETENESS WORKSHEET
 EPA Level III NFESC Level III

Date: 3-18-02

Page: 1 of 3

Reviewer: Z. Pan
 2nd Reviewer: J.

Modified

METHOD: GC Volatile Halogenated/Aromatic Hydrocarbons (EPA SW 846 Method 8010/8021B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-11-02 To 2-20-02
IIa.	Initial calibration	SW A	%RSD ≤ 20%
IIb.	Calibration verification	SW	%D ≤ 15%
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	N	Not required
IVc.	Laboratory control samples	A	LCS
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	SW	D ₄ = 23, 24 ; D ₅ = 29, 30 ; D ₆ = 35, 36
X.	Field blanks	N	(see page 2)

Note: A = Acceptable
 N = Not provided/applicable
 SW = See worksheet

ND = No compounds detected
 R = Rinsate
 FB = Field blank

D = Duplicate
 TB = Trip blank
 EB = Equipment blank

Validated Samples:

All Air

1	SVW30-VPA-01	11 D ₂	SVW12-VPC-11	21	SVW3-VPC-21	31	SVW9-VPD-31
2	SVW30-VPB-02	12 D ₂	SVW12-VPC-12 (dup)	22	SVW3-VPD-22	32	SVW9-VPE-32
3	SVW30-VPC-03	13	SVW12-VPD-13	23 D ₂	SVW4-VPB-23	33	SVW10-VPB-33
4	SVW30-VPD-04	14	SVW5-VPB-14	24 D ₂	SVW4-VPD-24 (dup)	34	SVW10-VPD-34
5 D ₁	SVW30-VPE-05	15	SVW7-VPA-15	25	SVW4-VPD-25	35 D ₂	SVW32-VPH-35
6 D ₁	SVW30-VPE-06 (dup)	16	SVW7-VPB-16	26	SVW17-VPC-26	36 D ₂	SVW32-VPH-36 (dup)
7	SVW31-VPA-07	17 D ₃	SVW1-VPB-17	27	SVW9-VPA-27	37	SVW11-VPA-37
8	SVW31-VPB-08	18 D ₃	SVW1-VPB-18 (dup)	28	SVW9-VPB-28	38	SVW11-VPE-38
9	SVW31-VPD-09	19	SVW1-VPB-19 (dup)	29 D ₃	SVW9-VPC-29	39	SVW14-VPA-39
10	SVW31-VPE-10	20	SVW2-VPA-20	30 D ₃	SVW9-VPC-30 (dup)	40	SVW14-VPB-40

Notes:

19 is SVW1-VPC-19

Except the following compounds within %RSD ≤ 30% and %D ≤ 25%:

- ① Trichlorofluoromethane (Freon 11)
- ② Dichlorodifluoromethane (Freon 12)
- ③ Trichloro-1,1,1-trifluoroethane (Freon 113)
- ④ Chloroethane
- ⑤ Vinyl chloride

LDC #: 8108A23
 SDG #: GF021102T2
 Laboratory: HP Labs

VALIDATION COMPLETENESS WORKSHEET

X EPA Level III NFESC Level III

Date: 3-18-02

Page: 2 of 3

Reviewer: Z. Pan

2nd Reviewer: J.

METHOD: GC Volatile Halogenated/Aromatic Hydrocarbons (EPA SW 846 Method 8010/8021B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times		Sampling dates:
IIa.	Initial calibration		
IIb.	Calibration verification		page 1.
III.	Blanks		See page 1.
IVa.	Surrogate recovery		
IVb.	Matrix spike/Matrix spike duplicates		
IVc.	Laboratory control samples		
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	D ₁ = 5, 6 ; D ₂ = 11, 12 ; D ₃ = 17, 18
VIII.	Overall assessment of data		D ₇ = 41, 42 ; D ₈ = 47, 48 ; D ₉ = 53, 54
IX.	Field duplicates	ND	D ₁₀ = 59, 60 ; D ₁₁ = 65, 66 ; D ₁₂ = 71, 72
X.	Field blanks		D ₁₃ = 77, 78 ; D ₁₄ = 83, 84 ; D ₁₅ = 89, 90

Note: A = Acceptable
 N = Not provided/applicable
 SW = See worksheet

ND = No compounds detected
 R = Rinsate
 FB = Field blank

D = Duplicate
 TB = Trip blank
 EB = Equipment blank

Validated Samples:

41 D ₁	SVW27-VPA-41	51	SVW27-VPJ-51	61	SVW37-VPI-61	71 D ₁	SVW39-VPC-71
42 D ₁	SVW27-VPA-42 (dup)	52	SVW26-VPF-52	62	SVW37-VPJ-62	72 D ₁	SVW39-VPC-72 (dup)
43	SVW27-VPB-43	53 D ₁	SVW26-VPG-53	63	SVW36-VPB-63	73	SVW39-VPD-73
44	SVW27-VPC-44	54 D ₁	SVW26-VPG-54 (dup)	64	SVW36-VPC-64	74	SVW39-VPE-74
45	SVW27-VPD-45	55	SVW26-VPH-55	65 D ₁	SVW36-VPE-65	75	SVW39-VPF-75
46	SVW27-VPE-46	56	SVW37-VPA-56	66 D ₁	SVW36-VPE-66 (dup)	76	SVW39-VPI-76
47 D ₃	SVW27-VPF-47	57	SVW37-VPD-57	67	SVW8-VPC-67	77 D ₃	SVW38-VPE-77
48 D ₃	SVW27-VPF-48 (dup)	58	SVW37-VPE-58	68	SVW8-VPD-68	78 D ₃	SVW38-VPE-78 (dup)
49	SVW27-VPG-49	59 D ₁₀	SVW37-VPH-59	69	SVW8-VPE-69	79	SVW38-VPF-79
50	SVW27-VPI-50	60 D ₁₁	SVW37-VPH-60 (dup)	70	SVW39-VPA-70	80	SVW38-VPJ-80

Notes:

LDC #: 8108A23
SDG #: GF021102T2
Laboratory: HP Labs

VALIDATION COMPLETENESS WORKSHEET

X EPA Level III NFESC Level III

Date: 3-18-02

Page: 3 of 3

Reviewer: Z-Pan

2nd Reviewer: J

METHOD: GC Volatile Halogenated/Aromatic Hydrocarbons (EPA SW 846 Method 8010/8021B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times		Sampling dates:
IIa.	Initial calibration		
IIb.	Calibration verification		
III.	Blanks		
IVa.	Surrogate recovery		
IVb.	Matrix spike/Matrix spike duplicates		
IVc.	Laboratory control samples		
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	56
VII.	System Performance	N	
VIII.	Overall assessment of data		
IX.	Field duplicates		
X.	Field blanks		

Note: A = Acceptable

ND = No compounds detected

D = Duplicate

N = Not provided/applicable

R = Rinsate

TB = Trip blank

SW = See worksheet

FB = Field blank

EB = Equipment blank

Validated Samples:

81	SVW35-VPE-81	91	SVW6-VPE-91	MB (2/20)		
82	SVW35-VPI-82	92	SVW33-VPD-92			
83 D	SVW15-VPB-83	93	SVW33-VPE-93			
84 D	SVW15-VPB-84 (dup)	94	SVW33-VPF-94			
85	SVW15-VPC-85		MB (2/11)			
86	SVW15-VPD-86		MB (2/12)			
87	SVW15-VPE-87		MB (2/13)			
88	SVW6-VPB-88		MB (2/14)			
89 D	SVW6-VPD-89		MB (2/15)			
90 D	SVW6-VPD-90 (dup)		MB (2/19)			

Notes:

TARGET COMPOUND WORKSHEET

Page: _____ of _____
 Reviewer: _____
 2nd Reviewer: _____

METHOD: VOA (EPA SW 846 Method 8240/8260/8021))

A. Chloromethane*	P. Bromodichloromethane	EE. Ethylbenzene**	TT. 1,2-Dibromoethane	III. n-Butylbenzene
B. Bromomethane	Q. 1,2-Dichloropropane**	FF. Styrene	UU. 1,1,1,2-Tetrachloroethane	JJJ. 1,2-Dichlorobenzene
C. Vinyl chloride**	R. cis-1,3-Dichloropropene	GG. Xylene, total	WV. Isopropylbenzene	KKK. 1,2,4-Trichlorobenzene
D. Chlorostethane	S. Trichloroethene	HH. Vinyl acetate	WW. Bromobenzene	LLL. Hexachlorobutadiene
E. Methylene chloride	T. Dibromochloromethane	II. 2-Chloroethylvinyl ether	XX. 1,2,3-Trichloropropene	MMM. Naphthalene
F. Acetone	U. 1,1,2-Trichloroethane	J.J. Dichlorodifluoromethane	YY. n-Propylbenzene	NNN. 1,2,3-Trichlorobenzene
G. Carbon disulfide	V. Benzene	KK. Trichlorofluoromethane	ZZ. 2-Chlorotoluene	OOO. 1,3,5-Trichlorobenzene
H. 1,1-Dichloroethene**	W. trans-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	AAA. 1,3,5-Trimethylbenzene	PPP. trans-1,2-Dichloroethene
I. 1,1,1-Dichloroethane*	X. Bromoform*	MM. 1,2-Dibromo-3-chloropropane	BBB. 4-Chlorotoluene	QQQ. cis-1,2-Dichloroethene
J. 1,2-Dichloroethene	Y. 4-Methyl-2-pentanone	NN. Diethyl ether	CCC. tert-Butylbenzene	RRR. 1,2-Trichloroethane
K. Chloroform**	Z. 2-Hexanone	OO. 2,2-Dichloropropane	DDD. 1,2,4-Trimethylbenzene	SSS. Dichloromethane
L. 1,2-Dichloroethane	AA. Tetrachloroethene	PP. Bromochloromethane	EEE. sec-Butylbenzene	TTT.
M. 2-Butanone	BB. 1,1,2,2-Tetrachloroethane*	QQ. 1,1-Dichloropropene	FFF. 1,3-Dichlorobenzene	UUU.
N. 1,1,1-Trichloroethane	CC. Toluene**	RR. Dibromomethane	GGG. p-Isopropyltoluene	WW.
O. Carbon tetrachloride	DD. Chlorobenzene*	SS. 1,3-Dichloropropane	HHH. 1,4-Dichlorobenzene	WWW.

* = System performance check compounds (SPCC) for RF ; ** = Calibration check compounds (CCC) for %RSD.

Notes:

LDC #: 8108A23
SDG #: GFF021102 T2

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: Z. Pau
2nd Reviewer: /

METHOD: GC Volatiles (EPA SW 846 Method 8010/8020)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

What type of continuing calibration calculation was performed? %D or RPD

Was at least one continuing standard run daily to verify the working curve?

Were continuing standards analyzed at a frequency of every 10 samples to verify the working curve?

Did the continuing calibration standards meet the percent difference (%D) and relative percent differences (RPD) criteria of $\leq 15.0\%$?

Level IV/D Only

Y N N/A Were the percent difference (%D) results recalculated? (Please see Calibration Verification results verification worksheet?)
Y N N/A Were the (%D) reported results within 10.0% of the recalculated results?

#	Date	Standard ID	Column	Compound	%D / RPD (Limit ≤ 15.0)	Associated Samples	Qualifications
1	2-11-02	B1070297	Not specific	K	10.3	#1-13 and MB(2/11)	J/J/A
				(GC 14A)			
2	2-12-02		SSS	17.8	# 14 - 26 and MB (2/12)		
			BB	15.5			
3	2-13-02		BB	15.4	# 27 - 40 and MB (2/13)		
4	2-20-02		BB	15.1	# 83 - 94 and MB(2/20)	V	
			✓				
5						D No CCAL performed	Text C
						KK	: These four compounds were JJ
							Not detected in AR Samples.

LDC #: 8108A23
SDG #: GF021102 T2

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: Z. Pan
2nd reviewer: J.

METHOD: GC Volatiles (EPA SW 846 Method 8010/8020)

Y N N/A

Were field duplicate pairs identified in this SDG?

Were target compounds detected in the field duplicate pairs?

Compound	Concentration (<u>ug/L</u>)		RPD
	# 23	24	
S	8.9	6.9	25

Compound	Concentration (<u>ug/L</u>)		RPD
	# 29	30	
RRR	1.1	1.3	17

Compound	Concentration (<u>ug/L</u>)		RPD
	# 35	36	
O	3.9	2.1	60
RRR	8.1	6.2	27

Compound	Concentration ()		RPD